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MCZ newsletter

MUSEUM OF COMPARATIVE ZOOLOGY

PROFESSOR PATTERSON TO STUDY FOSSILS IN TROPICAL SOUTH AMERICA

Professor Bryan Patterson, a world authority on South American mammals and Tertiary vertebrates in general, has received a three-year grant from the National Science Foundation to conduct field and laboratory investigations of the Tertiary vertebrates of tropical South America. Professor Patterson will be assisted by his former student,

Dr. Roger C. Wood, and by Arnold D. Lewis, Chief Preparator of the Paleontological Laboratories of the Museum. Dr. Wood, who is an Assistant Professor of Zoology at Stockton State College in Pomona, New Jersey, has visited both Venezuela and Brazil in the course of his studies of fossil and living turtles. Mr. Lewis joined the MCZ staff in 1953 and since that time has worked with Professor Patterson in the Miocene of Thomas Farm, Florida (1956), in the Tertiary and Triassic of Argentina



Professor Patterson in the field

(1958) and in the Miocene and Pliocene of East Africa (1963-67). In 1967, Mr. Lewis found the oldest specimen yet recovered of *Australopithecus*, a probable ancestor of modern man.

Professor Patterson has long been concerned with the evolution of South American vertebrates and the present research project is an extension of many years of study. According to Professor Patterson, knowledge of the Tertiary (ca. 70 million years to ca. 2.5 million years) vertebrate faunas of South America is largely restricted to the



Dr. Roger C. Wood to assist Professor Patterson

southern and temperate portions of the continent. Tropical faunas remain essentially unexplored. He states that "we have a rather good idea" of evolutionary events in the southern portion of the continent. However, knowledge of the tropical and northern faunas is essential to an understanding of the vertebrate history of the continent as a whole. Without such knowledge, generalizations concerning the evolution of South American vertebrates during this period are liable to be inadequate.

Moreover, research in the tropical regions of South America is directed towards gaining additional knowledge of the faunal interchange with North America during the last several million years. It is generally agreed that South America was an island continent from the end of the Cretaceous until very recently. Distinctive endemic mammalian, reptilian and fish faunas evolved there. The fossil record indicates that during the Tertiary occasional animals from the northern hemisphere managed to reach South America, surely by overseas rafting. Massive faunal interchange, however, did not occur until much later when the Panamanian land bridge finally linked North and South America. Professor Patterson feels that more precise evidence as to the date of the intercontinental connection should result from a greater understanding of the northern faunas during this stretch of time.

Initial work will consist of two expeditions, the first to north-central Venezuela and the second to the Amazon Basin in Brazil. These expeditions will be carried out in cooperation with the Department of Geology of the Universidad Central de Venezuela, represented by Maria Lourdes Diaz de Gamero, Professor of Paleontology, and with the Museu de Zoologia da Universidade de São Paulo in Brazil. Paulo E. Vanzolini, who received his Ph.D. from Harvard and is an Associate in Herpetology at the MCZ, directs the Museu de Zoologia in Brazil and will accompany his Harvard colleagues in the field.



Arnold D. Lewis, Chief Preparator

CONCORD FIELD STATION NOTES

THOREAU COLLECTION BASIS OF STUDY ON CONCORD FLORA

"To our great good fortune" is the comment of Dr. C. Richard Taylor, Director of the Concord Field Station (C.F.S.), referring to preparation of a comprehensive work tracing the flora of Concord from the time of Thoreau to the present. Publication of this work, *A Vascular Flora of Concord, Massachusetts*, will culminate the life-long observations and studies of Richard Jefferson Eaton, research associate in the Gray Herbarium and native of the area. "This book is important for present and future conservationists and students of the environment," states Dr. Taylor. "It provides the past history of man's influence on his New England environment and a baseline against which future changes can be evaluated." The meticulously constructed work is not merely a catalog but a comprehensive account of the vegetation, the history and topography of the entire Concord area.

Until Eaton's manuscript, the C.F.S. lacked the definitive survey of plants of the area which is essential as a framework for in-depth environmental and ecological studies. The C.F.S., consisting of about 750 acres of land in Concord and Bedford, includes the Estabrook Woods where Thoreau spent a great amount of time. It has remained a relatively undisturbed area for the last 200 years and Eaton's study relies extensively on Thoreau's botanical collections as well as those of the New England Botanical Club, both housed in the Gray Herbarium.

Because of its comprehensive reference value for the New England public as well as the scientific community, Professor Reed Rollins, Director of the Gray Herbarium, Professor Ernst Mayr, Professor Otto Solbrig, and Dr. Taylor felt that the book should have wider circulation than that of an ordinary Herbarium publication. They forwarded the manuscript to Harvard University Press, who agreed to publish it. The Press will underwrite part of the cost of publishing Eaton's work, but further funds must still be found before publication is possible.

C.F.S. STAFF CONDUCTS SEMINARS

Residents of the Concord community have the opportunity for a unique learning experience as they become familiar with research at the Concord Field Station (C.F.S.). Staff members of the C.F.S. are conducting a series of seminars for the general public at the Middlesex School, Lowell Road, Concord. At the first meeting in January, Dr. Charles Lyman discussed hibernation. The community is invited to attend the remaining two colloquia both to be held at 8:00 p.m.:

March	9	Professor Otto T. Solbrig The Dynamics of Dandelions
May	11	Professor Howard E. Evans Behavior of Local Wasps

In addition, seminars of a more technical orientation are being offered to the Harvard University community. The following discussions will be held at the station:

March	22	Professor Kunt Schmidt-Nielsen How Animals Work
	28	C. M. Blatt The Neglected Gland: Nose Sweat
April	12	Ross Lein Communication in Wood Warblers
	26	Fred Nijhout The Mating Behavior of Mosquitoes
May	10	Ross Kiester Strategies of Animal Behavior
	24	C. R. Taylor The Energetic Cost of Running

C.F.S. HANDBOOK IN PREPARATION

Over thirty members of the Harvard community are combining their talents to produce a handbook on the field resources available at the Concord Field Station (C.F.S.). The Field Station, which includes the Estabrook Woods and Pickman Area, provides an excellent model for environmental and ecological study in this region of the country. Yet at present, no comprehensive guide to the available resources exists. David S. Woodruff, Alexander Agassiz Lecturer on Biogeography, is coordinating preparation of the handbook to fill this gap.

Woodruff's interest in the Field Station grew out of an undergraduate tutorial on the evolution and ecology of natural populations which he conducts at Currier House, Radcliffe. In urging his students to do small field projects instead of more traditional library research term papers, he became aware of the need for a handbook of the Field

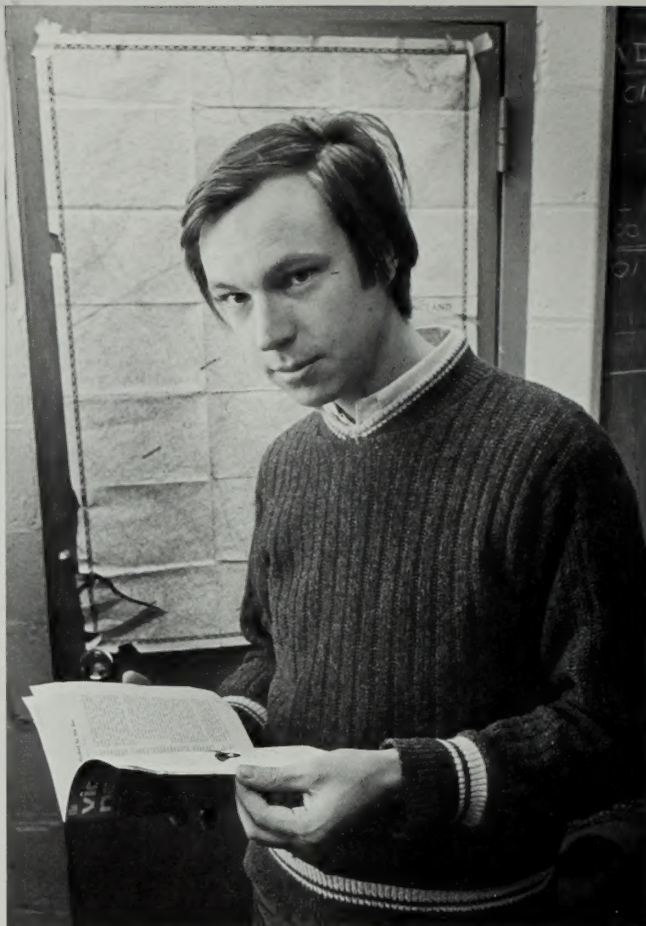


Photo by Rick Stafford

Fred Nijhout, invertebrates

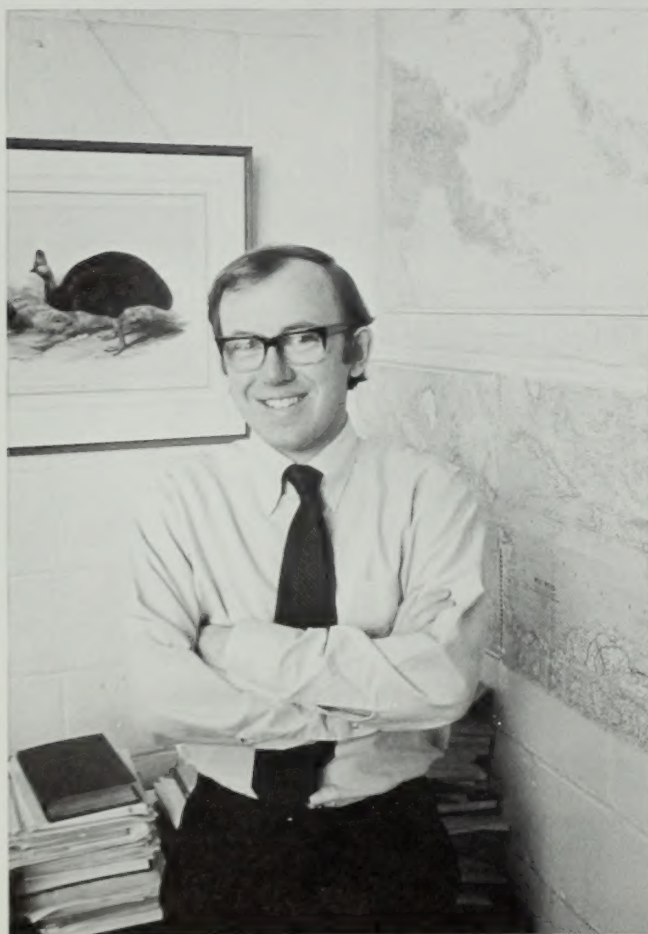


Photo by Rick Stafford

David S. Woodruff, coordinator of handbook

Station area. Woodruff stresses that although the first edition will not be a comprehensive guidebook, it will serve as a working manual and guide to existing information. As such it will be useful to a number of undergraduate courses and should greatly aid individual research. Woodruff's own research is concerned with the biogeography of species and the phenomenon of the species border. His doctoral studies involved Australian frogs and he is currently working with land snails of the Bahamas and Cape Cod. Among other faculty members using the Field Station's resources for their own undergraduate instruction are: Professor Otto Solbrig (population genetics), Professor Frank Carpenter (entomology), Professor Kenneth Boss (molluscs), Professor E. E. Williams (vertebrate zoology), Professor Herbert Levi (invertebrate zoology), and Professor William Bossert (ecology).

Three graduate students will assist Woodruff in organizing various sections of the handbook. Warren Abrahamson, a Ph.D. student under Professor Solbrig, is coordinating the botanical contributions. He has worked extensively in the Field Station area on the population biology of blackberries and goldenrods. A student working with Professor Carroll Williams, Fred Nijhout, is organizing the contributions on invertebrates. Ross Lein, one of Professor Ernst Mayr's



Photo by Rick Stafford

Ross Lein, ornithology

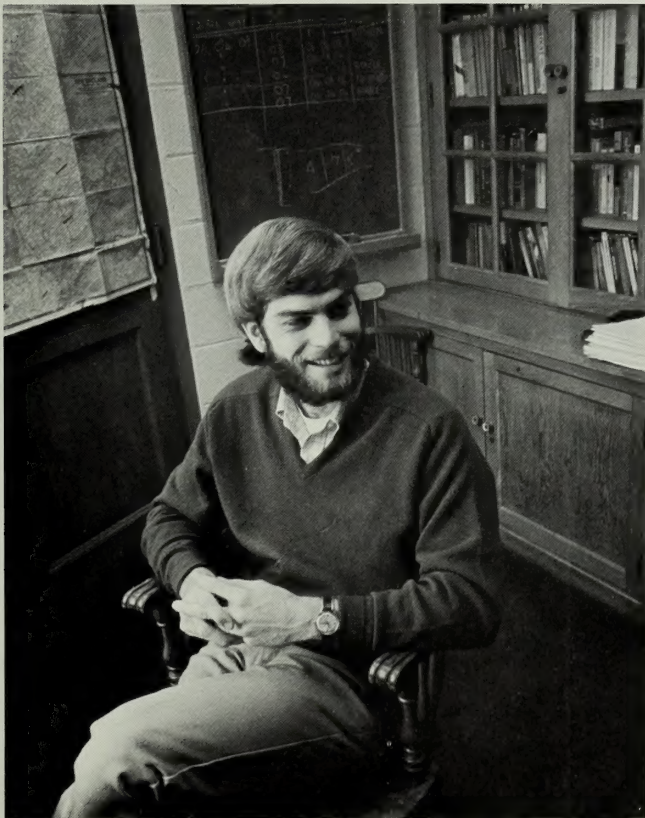


Photo by Rick Stafford

Warren Abrahamson, botany

graduate students, has been studying the behavior of warblers at the Field Station for several years. He will contribute the section on ornithology and is preparing maps of the area.

The handbook, made up of a number of individual contributions, will include an account of the history of the Field Station area and a description of the local environment (geography, geology, soils and climate). A vegetation map indicating distribution of the various plant communities will be accompanied by a description of the flora; extensive botanical work has already been done in the Concord area by Richard Eaton (see article on his book in this issue). Annotated faunal species lists for prominent groups (including the amphibians, reptiles, birds and mammals) and general accounts and references to source materials for other groups will be included. A collection of keys, field guides and other aids to identification will also be assembled at the Countway Laboratory of the Field Station as part of the project.

The field work and research involved in the handbook's compilation are being donated by members of Harvard University and the Concord community. Funds for publication of the first edition planned for the end of the summer of 1972 are being sought.



Marcelo Gregorio repairs rare work

MARCELO GREGORIO MCZ EXPERT ON PRESERVATION OF LIBRARY MATERIALS.

The term "conservation" has various connotations around the MCZ but one which is seldom heard is its application to library materials. The MCZ Library contains over a quarter of a million volumes and its collection ranks among the largest and most valuable of its kind in the world. Proper conservation of the Library's books and journals involves repairing and preserving rare and poor paper materials as well as binding and rebinding other much used books and journals.

Marcelo Gregorio, Binding Assistant under Librarian Mrs. Hugh Hill, has worked in the Library for more than four years. During his term as binder, he has perfected and extended his skill and now does much work with the especially valuable collections by hand. It would be prohibitively expensive to send these materials to commercial binderies, and Mr. Gregorio's meticulous labors not only serve to retain these materials in their authentic form but also to make them readily available to the staff and students of the scientific community. He also constructs unique containers in which much archival material is housed.

Mr. Gregorio has taken over some of the routine binding processes such as collation on current monographs and journals, thus reducing the work that must be sent to commercial binderies. His examination of the comparative costs of binding combined with his craftsmanship has

resulted in nearly tripling the number of pieces of material that receive care without increasing the cost to the Museum.

His dedication to his work and proficiency in his craft was evidenced most recently by an invitation from the General Bookbinding Company in Chesterland, Ohio, to attend a workshop as a guest of the Company. This spring, Mr. Gregorio will attend Brown University and represent the MCZ in a course under Daniel G. Knowlton, Master Bookbinder and member of the Miniature Painters, Sculptors and Gravers Society in Washington, D.C.

CHILDREN'S PROGRAMS ADDED IN MUSEUM

Activities of the Friends of the MCZ are expanding to include programs for children of the Friends. A series of workshops and field trips conducted by graduate students of the Museum has been planned for the winter and spring. Emphasis and content of each program will vary according to the ages of the children involved.

In February, Tim Moermond, an ecologist in the Herpetology Department, discussed man's relationship to his environment in a program planned for high school students. Tim had some unusual live frogs from Africa for younger children to watch and handle. The children were able to discover several fascinating features of these common but little known animals.

Bob Bakker, who carries out a major portion of his thesis work in Vertebrate Paleontology at the Concord Field Station, will hold an April workshop at the Station. He plans to demonstrate studies on energy use of various monkeys, tapirs and the black-buck during running. He will also introduce his group to South American lizards as well as to some intriguing snakes.

The May program is being organized by Bob Beauchamp, a marine geologist in the Invertebrate Paleontology Department. He will conduct a field trip to the ocean where the children will have an opportunity to observe the effects of the sea on biological life.

For the final program, Garry Mayer, a PH.D. candidate in Ichthyology, is planning a late spring trip to the Woods Hole Oceanographic Institution. He hopes that his group will be able to tour a vessel used in oceanographic exploration.

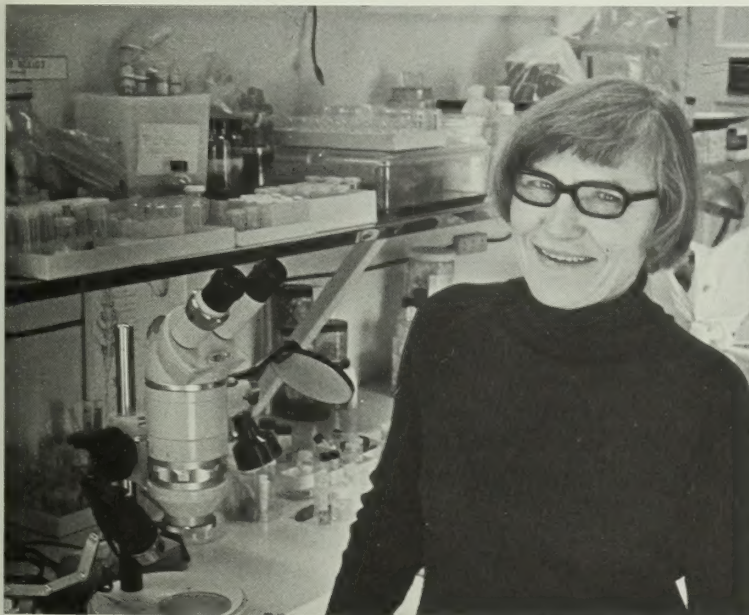
This series of programs is intended to be a basis for expanded use of the Museum's facilities by school children. Similar programs involving the public schools are projected.

DR. TURNER ADDRESSES FRIENDS

Dr. Ruth Turner, a member of the MCZ Mollusc Department, discussed her special field of research at the Friends' meeting on February 29th. In recent years, she has worked extensively with Teredinidae and deep sea wood borers.

The Teredinidae, or shipworms, are marine boring molluscs whose propensity for destroying wharves and wooden ships has plagued man for centuries. As a result of the unexpected collapse of wharves in Queensland and Tasmania, Australia, in 1969, Dr. Turner was invited by the Australian government to investigate the problem and make a survey of the Australian Teredinidae. Dr. Turner was already familiar with the problem, having published her definitive work in 1966, *A Survey and Illustrated Catalogue of the Teredinidae*. After nine months of field work she concluded that Australia has the richest teredinid fauna in the world.

Dr. Turner is primarily interested in the systematics, biology and distribution of these highly specialized molluscs. She points out that, though shipworms are generally considered pests, they are really very beneficial, being among the most important organisms involved in the recycling of woody plant material in the sea. At her laboratory at Nahant, Mass., Dr. Turner and her associate, Dr. John Culliney, are studying the life histories and behavior of these borers. They are making a documentary film showing the development of shipworms from spawning through the larval stages to settlement and penetration of the wood. Her work also has a practical application; to effectively control a pest, one must first know its biology and life history.



Dr. Ruth Turner in her laboratory

Dr. Turner recently became the first woman to make a dive in ALVIN, the deep submersible (three-person submarine) of Woods Hole Oceanographic Institution. At a depth of 1750 meters she put out pieces of wood for the purpose of studying deep ocean boring and fouling organisms. She will retrieve the wood in the spring.

Though the teredos represent a major portion of Dr. Turner's recent work, she continues her research on marine molluscs of the western Atlantic, land snails and comparative morphology of the Bivalvia. Dr. Turner is a former student of Dr. William J. Clench, Honorary Curator of Molluscs in the MCZ. In addition to lecturing in the Museum, Dr. Turner is Research Associate in Malacology and Alexander Agassiz Fellow in Zoology and Oceanography.



William J. Clench, Honorary Curator of Molluscs in the MCZ, has been appointed Adjunct Professor of Zoology and Adjunct Curator of Molluscs at the Museum of Zoology, Ohio State University. Dr. Clench, who served the MCZ from 1926 until his retirement in 1966, is an authority on world freshwater and land molluscs. During his term in the Museum, he founded and edited the Mollusc Department publications, *Johnsonia* and *Occasional Papers of the Museum of Comparative Zoology*.

I wish to express appreciation to Rick Stafford of the Harvard University Gazette who contributed many of the photographs in this issue.

(Mrs.) Hedy Mattson, Editor

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